

Prevalence of depression and its determinants among elderly population in a rural area of Kanchipuram district, Tamil Nadu

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ABSTRACT

Background: Globally, the proportion of elderly population is in rise, and as age advances, there is an increased morbidity and disability. Depression is the most usual mental disorder in the elderly, but usually under diagnosed and undertreated. The phenomenon of old age coupled with depression is a serious public health problem which needs to be addressed. **Objectives:** The objectives of this study were to determine the prevalence and determinants of elderly population in a rural area of Tamil Nadu. **Materials and Methods:** A community-based cross-sectional study was carried among 351 elderly participants during November–December 2014 residing in a rural area of Kanchipuram district, Tamil Nadu. Data were collected using a predesigned and pretested questionnaire including the 15-item Geriatric Depression Scale by the trained interns. Multivariate analysis was done to identify the independent predictors of depression among the elderly. **Results:** Of the 351 participants, 70 (19.9%) 95% confidence interval (17.7–22.03) of the people had depression. Unemployment, nuclear family, socioeconomic status, relationship with family members, financial support, and living with a spouse were identified as independent predictors for depression. **Conclusion:** The prevalence of depression was 19.9%, and it was high among the people above the age group of 70 years, respondent belongs to the upper class, and unemployed and unsatisfactory relationship with children was associated with depression.

KEY WORDS: Depression; Prevalence; Geriatric Depression Scale

INTRODUCTION

Advances in medicine have increased the life expectancy dramatically resulting in an increase in the elderly population worldwide, and their proportion will only continue to rise in the coming years.^[1,2] The life expectancy at birth of the world's population in 2011–2016 is projected to be 67

and 69 years, respectively, for males and females.^[3] The proportion of the population over 60 years will double from about 11% in the year 2000 to 22% by 2050.^[3] Elderly people are vulnerable to various health problems and associated with higher morbidity and disability compared to the general population. Addressing the health problems of the elderly and costs associated with it are real challenges of health system.

Mental disorders are widely recognized as a major contributor (14%) to the global burden of disease worldwide. Depression is the most usual mental disorder in the elderly, but usually under diagnosed and undertreated. The World Health Organization reported that 154 million people globally suffered from depression.^[4] Studies in India have revealed that the prevalence of depressive disorders among

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elderly Indian population varies between 13% and 25%.^[5] It is associated with increased disability and costs and negative health outcomes over time.

The phenomenon of old age coupled with depression is a serious public health problem which needs to be addressed, but it is usually neglected by the healthcare providers, public health researchers, and policymakers. Thus, India has substantial share of the elderly with depression. Early identification and management of depression will improve their quality of life. Generating evidence about the burden and determinants of depression among the elderly persons are necessary and need of the hour for planning sustainable public health interventions. Our study is an attempt with the objective to study the prevalence and determinants of depression among the elderly in a rural population of Tamil Nadu.

MATERIALS AND METHODS

A community-based cross-sectional study conducted in November–December 2014. The study respondents consisted of elderly people aged >60 years and were permanent residents of Chunampet, Kanchipuram district, Tamil Nadu, which comes under the field practice area of the Department of Community Medicine, Pondicherry Institute of Medical Sciences, Puducherry, with a population of around 16,000. The study respondents were identified through annual health survey conducted by the Department of Community Medicine. People who were not comfortable with the interview session and those who were unable to hear and speak were excluded from the study.

Sample Size

The sample size was calculated with 5% alpha error, 3.8% absolute precision, and 12.7%^[6] prevalence based on a study done by Rajkumar *et al.*, in a rural South-Indian community, and based on this, the estimated sample size was found to be 308. However, in our study, we interviewed 351 respondents. The list of households with the elderly was retrieved from the annual health survey data conducted by the department of community medicine. Based on the above, the sampling frame was made. The study respondents were selected using simple random sampling using random numbers generated by SPSS 16.0. If more than one eligible respondents were present in the same household, one was interviewed using lottery method. The respondents were explained about the purpose of the study and a consent was obtained from the respondents before data collection.

Study Tool

The data were collected using a pre-tested questionnaire which included demographic information, past medical history including any addictions, and other chronic diseases.

In the questionnaire, we included all the possible variables which are responsible for depression based on various studies done in around the world. Depression was assessed using the 15-item Geriatric Depression Scale (GDS), which is a 15-item self-report assessment used as a basic screening measure of depression in the elderly. Those with GDS score >5 were categorized as depressed.^[7] The interview was conducted in the local mother tongue (Tamil). The data were collected by trained interns, medical social workers, and postgraduate students under the supervision of faculties. The data collection team had undergone training in the department of community medicine under the guidance of psychiatrist.

Statistical Analysis

The data were entered into Microsoft Excel and analyzed using Epi-info version 6 software. Chi-square test, odds ratio, and its 95% confidence interval (CI) were calculated. Multiple logistic regressions were carried out using SPSS software version 16.

RESULTS

The prevalence of depression (GDS score >5) among the elderly population under study was found to be 19.9%. Table 1 summarizes that the prevalence was higher in people aged >70 years, unemployed, responders who lost their spouse, nuclear family, class five socioeconomic status (based on B.G. Prasad scale), absence of support from family members, dissatisfaction with the present livelihood, and respondents with sleep disturbance. Similarly, the prevalence was low among people who had a harmonious relationship with children. Table 2 summarizes that on applying multivariate regression analysis, those respondents living with the spouse, people who had a harmonious relationship with children, upper socioeconomic class, and those were living in the pucca house were found to be protective for depression. Moreover, also respondents who were unemployed, receiving no financial support from family, and living in the nuclear family were more prone to depression. Literacy, age >70 years, physical activity, gender, living with children, history of hypertension, tobacco consumption, and alcohol intake were not found to have any significant relation with depression in the multivariate analysis.

DISCUSSION

Depression is a common mental disorder, characterized by sadness, loss of interest or pleasure, feelings of guilt or low self-worth, disturbed sleep or appetite, feelings of tiredness, and poor concentration.^[8] Prevalence of depression among the elderly population under study was found to be 19.9% which was higher in people aged >70 years, unemployed, responders who lost their spouse, nuclear family, class five socioeconomic status, absence of support from family

Table 1: Association between sociodemographic profile and depression

Variable	Frequency <i>n</i> =351 (%)	Depression (<i>n</i> =70) (%)	No depression <i>n</i> =281 (%)	Odds ratio	95 CI	<i>P</i>
Age distribution						
>70	63	15 (23.8)	48 (76.2)	1.33	0.691–2.536	0.088
<70	288	55 (19.1)	233 (80.9)			
Gender						
Male	151	24 (15.9)	127 (84.1)	0.63	0.36–1.093	0.099
Female	200	46 (23)	154 (77)			
Marital status						
Widow	307	65 (21.2)	242 (78.2)	0.47	0.18–1.26	0.128
Living with spouse	44	5 (11.4)	39 (88.6)			
Occupational status						
Unemployed	27	13 (48.2)	14 (51.9)	4.35	1.94–9.75	0.001
Employed	324	57 (17.6)	267 (82.4)			
Literacy						
Illiterate	272	57 (21)	215 (79)	1.34	0.694–2.61	0.37
Literate	79	13 (16.5)	66 (83.5)			
Family type						
Nuclear	105	30 (28.6)	75 (71.4)	2.06	1.19–3.54	0.05
Joint	246	40 (16.3)	206 (83.7)			
Housing condition						
Pucca	282	45 (16)	237 (84)	1.00	Reference	
Semi pucca	53	22 (41.5)	31 (58.5)	1.2	0.322–4.54	0.77
katcha	16	3 (18.8)	13 (81.2)	1.22	0.74–1.203	0.089
Socioeconomic status						
Class V	9	5 (55.6)	4 (44.4)	7.12	1.6–31.5	0.010
Class IV	51	13 (25.4)	38 (74.6)	7.6	1.83–31.9	0.005
Class III	91	18 (19.8)	73 (80.2)	5.8	1.3–24.7	0.017
Class II	128	20 (15.6)	108 (84.4)	4.03	0.898–17.8	0.069
Class I	72	14 (19.4)	58 (80.6)	1.00	Reference	
Family members support						
Absent	193	52 (26.9)	141 (73.1)	2.86	1.59–51.4	0.03
Present	158	18 (11.4)	140 (88.6)			
Harmonious relationship with children						
Yes	177	20 (11.3)	157 (88.7)	0.031	0.179–0.55	0.001
No	174	50 (28.7)	124 (71.3)			
Satisfaction with life						
No	122	41 (33.6)	81 (66.4)	3.40	2.03–5.99	0.005
yes	229	29 (2.7)	200 (87.3)			
Sleep disturbance						
Yes	237	57 (24.1)	180 (75.9)	2.46	1.28–4.71	0.001
No	114	11 (11.4)	101 (88.6)			

**P*<0.05 is considered as statistically significant. CI: Confidence interval

members, dissatisfaction with the present livelihood, and respondents with sleep disturbance.

The prevalence of depression in our study was 19.9%, our finding is similar to that of various studies done in India in which the prevalence of depression among the elderly varies

between 15 and 20%.^[2] Similar finding was also observed by another meta-analysis done by Barua *et al.*^[9] which showed the prevalence of depression to be 21.9%. Furthermore, the prevalence has been reported as 12.7% in a rural area of Vellore, Tamil Nadu,^[6] 29.36% in the urban slums of Dharwad^[10] district, Karnataka, and 31.4% in a rural population

Table 2: Multivariate analysis of the association of risk factors with depression

Characteristics	P	Odds ratio	95% CI	
			Lower	Upper
Living with spouse				
Yes	0.049*	0.322	0.104	0.997
No		(Reference)		
Unemployment	0.006*	4.838	1.581	14.806
Yes				
No		(Reference)		
Literacy	0.469	1.383	0.575	3.325
Yes				
No		(Reference)		
Harmonious relationship with family	0.000*	0.185	0.078	0.437
Yes				
No		(Reference)		
Age of the respondent	0.799	1.116	0.481	2.586
More than70				
60–70		(Reference)		
Financial Supports from family	0.004*	3.031	1.421	6.464
Yes				
No		(Reference)		
Physically active	0.074	1.683	0.951	2.977
Yes				
Not		(Reference)		
Gender	0.096	1.847	0.897	3.807
Female				
Male		(Reference)		
House	0.027	0.514	0.285	0.928
Pucca				
Others		(Reference)		
Family	0.028*	2.200	1.089	4.447
Nuclear				
Joint family		(Reference)		
Living with children				
Yes	0.505	0.537	0.086	3.342
No		(Reference)		
H/o hypertension	0.306	1.747	0.600	5.087
Yes				
No		(Reference)		
Tobacco consumption	0.166	0.625	0.322	1.215
Yes				
No		(Reference)		
Alcohol intake	0.211	2.166	0.645	7.277
Yes				
No		(Reference)		
Socioeconomic status	0.035*	0.711	0.518	0.976
Upper class				
Others		(Reference)		

*P<0.05 was considered statistically significant. CI: Confidence interval

Ahmednagar, Maharashtra.^[11] Our study found that as age increases, the prevalence of depression also increases. Studies carried out by researchers from across the world also revealed that depression comes to light in the 6th decade of life among the elderly and indicates that generalized depressive disorder is the most common disorder among adults over 60 years and its prevalence increases as age advances.^[1,2,10] In our study, we also found that nuclear family, lower socioeconomic status, unemployed, poor support from family members, illiteracy, sleep disturbance, and dissatisfied relationship with children had the statistically significant association. A study carried out by Sengupta and Benjamin^[12] also found that older elderly, nuclear family, illiteracy, unemployment, and lower socioeconomic status were strong risk factors for depression. However, the latter study showed that female gender was an independent risk factor for depression which was not observed in our study. A study was done in Pakistan^[13] also reported that elderly without the spouse, female gender, low level of education, and unemployment was independent risk factors for depression. Our study result was similar with respect to living without spouse and unemployment, whereas our study did not show any significant association between literacy and depression in the multivariate analysis. The present study also found that harmonious relationship with family and living in the pucca house were found to be protective for depression. Our study also found that poor financial support from family, living in the nuclear family, and upper socioeconomic status were independent predictors of depression. Taqui *et al.*^[13] and Jhingan *et al.*^[14] also showed nuclear family as an independent risk factor for depression. We also found that the respondent belongs to lower socioeconomic status was more Class V (odds ratio 7.12 95 CI: 1.6–31.5) prone to depression compared to upper class (reference) which is statistically significant. Similar result was also observed by Vishal *et al.*^[15] In our study, unemployment (odds ratio 4.8 95 CI: 1.5–14.8) was found to be the independent predictor of depression. Similar results were also observed by certain other studies.^[13,16] Even though our study did not found statistical significance with respect to gender, however, the proportion of depression among female was high (23%) were compared to males (15.9) which is similar to the study done by Taqui *et al.*^[17] Kleisiaris *et al.*^[16] where the depression was higher among females compared to males. The present study also identified that family support and harmonious relationship with children were found to be protective for depression. Similarly, a study was done by Okabayashi *et al.* also found that greater relationship with children was found to be positively correlated with higher positive well-being, less distress.^[18]

A potential limitation of our study may be the fact that the assessment factors because the self-reference answers have subjective value and the elderly are an age group with specific physical and mental characteristics. Another potential limitation was that diagnosis of depression was not given by specialist neurologist in all participants.

CONCLUSION

The prevalence of depression among the elderly population was found to be 19.9%. Living without spouse, unemployment, not having the harmonious relationship with family, living in other than the pucca house, poor financial support from family, nuclear family, and low socioeconomic status were found to be associated with depression even after controlling for other factors. Policymakers and program planners should focus on these issues and steps have to be taken to strengthen the mental health of the elderly.

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